

9. 61109/Pt. 4

U. S DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY—BULLETIN No. 109, Part IV.

L. O. HOWARD, Entomologist and Chief of Bureau.

PAPERS ON INSECTS AFFECTING VEGETABLES.

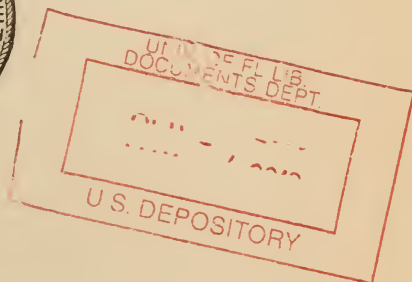
A LITTLE-KNOWN CUTWORM.

BY

F. H. CHITTENDEN, Sc. D.,

In Charge of Truck Crop and Stored Product Insect Investigations.

ISSUED APRIL 5, 1912.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1912.

BUREAU OF ENTOMOLOGY.

L. O. HOWARD, *Entomologist and Chief of Bureau.*

C. L. MARLATT, *Entomologist and Acting Chief in Absence of Chief.*

R. S. CLIFTON, *Executive Assistant.*

W. F. TASTET, *Chief Clerk.*

F. H. CHITTENDEN, *in charge of truck crop and stored product insect investigations.*

A. D. HOPKINS, *in charge of forest insect investigations.*

W. D. HUNTER, *in charge of southern field crop insect investigations.*

F. M. WEBSTER, *in charge of cereal and forage insect investigations.*

A. L. QUAINANCE, *in charge of deciduous fruit insect investigations.*

E. F. PHILLIPS, *in charge of bee culture.*

D. M. ROGERS, *in charge of preventing spread of moths, field work.*

ROLLA P. CURRIE, *in charge of editorial work.*

MABEL COLCORD, *in charge of library.*

TRUCK CROP AND STORED PRODUCT INSECT INVESTIGATIONS.

F. H. CHITTENDEN, *in charge.*

H. M. RUSSELL, C. H. POPENOE, WILLIAM B. PARKER, H. O. MARSH, M. M. HIGH,
FRED A. JOHNSTON, JOHN E. GRAF, *entomological assistants.*

I. J. CONDIT, *collaborator in California.*

P. T. COLE, *collaborator in Tidewater Virginia.*

W. N. ORD, *collaborator in Oregon.*

THOMAS H. JONES, *collaborator in Porto Rico.*

MARION T. VAN HORN, PAULINE M. JOHNSON, *preparators.*

CONTENTS.

	Page.
Injurious occurrence.....	47
Results from applications of arsenate of lead.....	49
Description	50
The moth.....	50
The larva	50
Distribution.....	50
Natural enemies.....	51

ILLUSTRATIONS.

	Page.
FIG. 8. <i>Porosagrotis vetusta</i> : Moth, larva.....	50



PAPERS ON INSECTS AFFECTING VEGETABLES.

A LITTLE-KNOWN CUTWORM.

(*Porosagrotis vetusta* Walk.)

By F. H. CHITTENDEN, Sc. D.,

In Charge of Truck Crop and Stored Product Insect Investigations.

INJURIOUS OCCURRENCE.

During the past decade authentic evidence, based on specimens which have been reared to the adult, has been received of the injuriousness of the cutworm *Porosagrotis vetusta* Walk., and complaints have reached the bureau of other cases of injury doubtless wrought by the same insect.

* April 22, 1901, Mr. R. W. Caviness wrote from Southern Pines, N. C., sending numerous specimens of this cutworm, many nearly mature, with information concerning its ravages. His place at that time was described as literally alive with them, and there was an outbreak of the same species the previous year (1900), when it was impossible to get a stand of watermelons until the cutworms had matured. They seemed to eat "every green thing." Many cutworms were found on and about dewberry, sometimes a dozen or more to a vine. They crawled up the vines and ate the buds and leaves, and treated young peach and other trees in the same manner. It was impossible to get a stand of beans, cabbage, or any other garden "stuff." They were described as most abundant and doing their worst damage on cowpeas. In 1900 they cut fall-sown turnips until the weather became too cold for the larvæ to work.

May 18 Mr. Caviness made another sending of this cutworm taken from melon vines, 100 having been caught in an hour's time. They infested small vines that were just coming up, entirely destroyed one field of corn, and it was found necessary to replant both melons and corn. The land had previously been planted to cowpeas, but there was no apparent reason why this crop had any influence on the

development of the cutworm except for some evidence that it might be a preferred food plant.

The moths issued in our rearing jars during the first and second weeks of September, and conditions were such at that time that this is probably about the same period of issuance as that under natural conditions.

In May, 1902, this cutworm was again very abundant in the same locality, particularly around watermelon hills. Our correspondent wrote further of this species and of a related form (probably the granulated cutworm, *Feltia annexa* Treit.) with which it was associated, that it had been a terrible pest in his vicinity during the two years previous, and that in 1901 the insects were notably more numerous than before. He stated that it would have been impossible to have grown a crop like cotton or tobacco on his place that year. Some of the larvæ were remarkably late in transforming to pupæ, this being painfully evident in his melon field.

No positive information concerning damage by this species was reported for a few years thereafter, but there can be no doubt whatever that it was injurious, more or less, during many if not all of the remaining years.

In 1908 this species was observed by Mr. C. H. Popenoe and the writer injuring kale, spinach, and lettuce in June at Norfolk, Va., where it was also associated in every instance of observed injury with the granulated cutworm (*Feltia annexa*).

September 3, 1909, near Poplar Branch, N. C., these cutworms were found by Mr. W. L. McAtee, of the Biological Survey of this department, to be exceedingly numerous in a little truck garden kept by Capt. J. T. Westcott. Single rakes of the fingers over 6 inches of the sandy soil disclosed from 6 to 12 cutworms. He gathered a quart of these for fish bait in a few minutes. Cantaloupe and watermelon vines were entirely defoliated and corn and tomatoes were slightly attacked.

March 22, 1910, Mr. F. A. Johnston examined a field of about 3 acres of cultivated dandelions on the farm of Mr. Bruce Carney, at Churchland, Va., and found it badly infested with cutworms of this species. Hidden in the dead leaves around the base of some plants there were as many as 5 or 6 young larvæ. Some were quite small, and no appreciable damage had been done to the crop up to that date by this pest. The winter had been severe on the dandelions, most of them being killed back to the ground, but since the warmer weather set in the plants had made quite rapid growth and were in very fair condition. The crop was being cut for market and it seemed quite probable that a thorough spraying of the leaves that remained after the crop was harvested with either arsenate of lead or Paris green would control the pest.

Some of the larvæ obtained from this source were kept for rearing in this bureau. The first adult issued May 20, and others transformed to moths September 15 and 20.

During the first days of September, 1910, in an extremely heated spell, this species attracted attention on the farm of Mr. B. C. Haines, near Shelton, Va. Mr. Haines was advised to use arsenate of lead at the rate of 4 pounds in 50 gallons of water, and when the writer visited the infested locality a few days later he found that this remedy was producing excellent results. It should be mentioned that on Mr. Haines's farms truck plants are grown in alternate years, so as to produce four alternate crops. In this case parsley, growing between rows of lettuce, was badly affected. As soon as the lettuce was cut for market parsley began to appear and was cut off by the worms even with the ground, so that only a few plants could be seen here and there. The farm is being conducted by irrigation, both overhead and by means of hose, and it is probable that the prompt success in the use of arsenate of lead was doubtless due to the fact that the insects were watered, and thus cooled, at night and heated again by the extremely hot weather occurring during the day. It was found impossible to trace the occurrence of this species earlier in the season, and it was finally agreed between Mr. Haines and the writer that in all probability the cutworms had been introduced with stable manure grown up freely with grass and weeds which had been used when the lettuce and parsley were first planted. They could not have come from any outside source or from any earlier crop. The success of Mr. Haines in his treatment of this pest is shown in the accompanying abstract from his letter.

RESULTS FROM APPLICATIONS OF ARSENATE OF LEAD.

NORFOLK, VA., *November 18, 1910.*

I received your letter of the 16th instant, in regard to the cutworms on my parsley and the ravages of the army worm in this section this fall. As you remember, I had a hard fight with the cutworms on my parsley field, but I feel fully compensated for my work and expense in fighting them. I had several places in each bed where I had to reset plants where the cutworms cut them off, but aside from those few spots I have a perfect stand and am now marketing my crop, and I wish you could see that crop. The best outlook I have ever had.

I kept constantly spraying my parsley with arsenate of lead (4 pounds to 50 gallons of water), and in all I think I gave it five applications. * * *

B. C. HAINES.

It should be added to the above that a careful survey of the infested field by the author showed plainly that an arsenical was the only remedy that could be conveniently used after the outbreak was at its height. It should be added also that the arsenate of lead was not applied five successive times on the same plants.

DESCRIPTION.

The moth.—The moth of this species is quite unlike any common form which inhabits the North Atlantic region, being much paler in color. The forewings are gray, with a pinkish tinge in fresh specimens. There is a submedian dark spot and a row of spots in the form of a curve in the outer third of the wing. The markings are well illustrated in figure 8 (above). It will be noted that the hindwings, which are silvery whitish and are more or less tinged on the outer edges with gray, are considerably shorter. The thorax is of about the same color as the fore wings and nearly uniform throughout. The anterior portion of the abdomen is white and the posterior portion, sometimes a little more than half, is gray. The lower surface is pale, with the fore wings more or less suffused anteriorly with fuscous. The posterior legs are distinctly tessellated. The abdomen is rather more robust than in many related forms, being

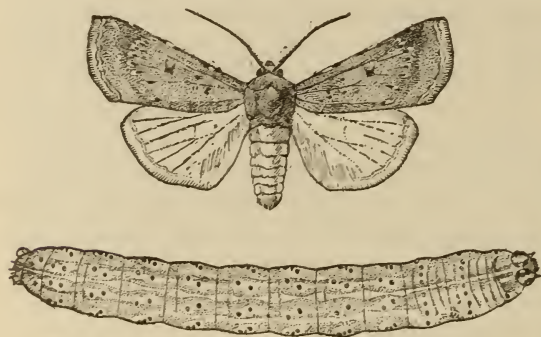


FIG. 8.—*Porosagrotis vetusta*: Moth and larva.

narrower in the male. The wing expanse is $1\frac{1}{2}$ inches and the length of the body is about five-eighths of an inch.

The eggs and earlier stages of the larva have not been studied to the writer's knowledge.

The larva.—The larva is subject to

considerable variation, which may be dependent on the soil. Specimens received from North Carolina, in a very sandy soil, are pale, with a decidedly pinkish tinge. The arrangement of the tubercles is shown in figure 8, as is also the form of the thoracic plate. The larva, when alive and when fully matured, measures about $1\frac{1}{2}$ inches, but the inflated specimens run as high as 2 inches in length.

No specimens of the pupa have been preserved for description.

DISTRIBUTION.

All of the specimens of this species in the United States National Museum are from New York State, and are labeled as follows:

Albany, Long Island, Carver, Rochester, and Franklin County, N. Y.

There are also specimens of what appear to be races of this species, one of them being labeled *Porosagrotis satiens*, from Coleville, Wash., Glenwood Springs, Colo., and from Arizona, and a second

species labeled *P. catenula* Grote, from Los Angeles, Cal., Glenwood Springs, Colo., Phoenix, Ariz., and Kaslo, British Columbia.

We have reared *Porosagrotis vetusta*, which displays only slight variation as compared with many other forms of cutworm moths, from Shelton, Churchland, and Norfolk, Va., Rocky Ford, Colo., and Southern Pines, N. C. Another locality is Poplar Branch, N. C.

In 1895 Slingerland¹ mentioned this species in connection with other climbing cutworms under the name of the "spotted-legged cutworm," stating that it occurred in Erie, Lewis, and Monroe Counties, N. Y. Less than 2 per cent, however, of the climbing cutworms received from western New York in 1893 and in 1894 belonged to this species. Beyond the fact that it was found on peach buds, nothing was then known of its habits. The larvæ and moth were figured.

NATURAL ENEMIES.

This species no doubt has many natural enemies. The following, however, are the only ones at present known, both being parasitic:

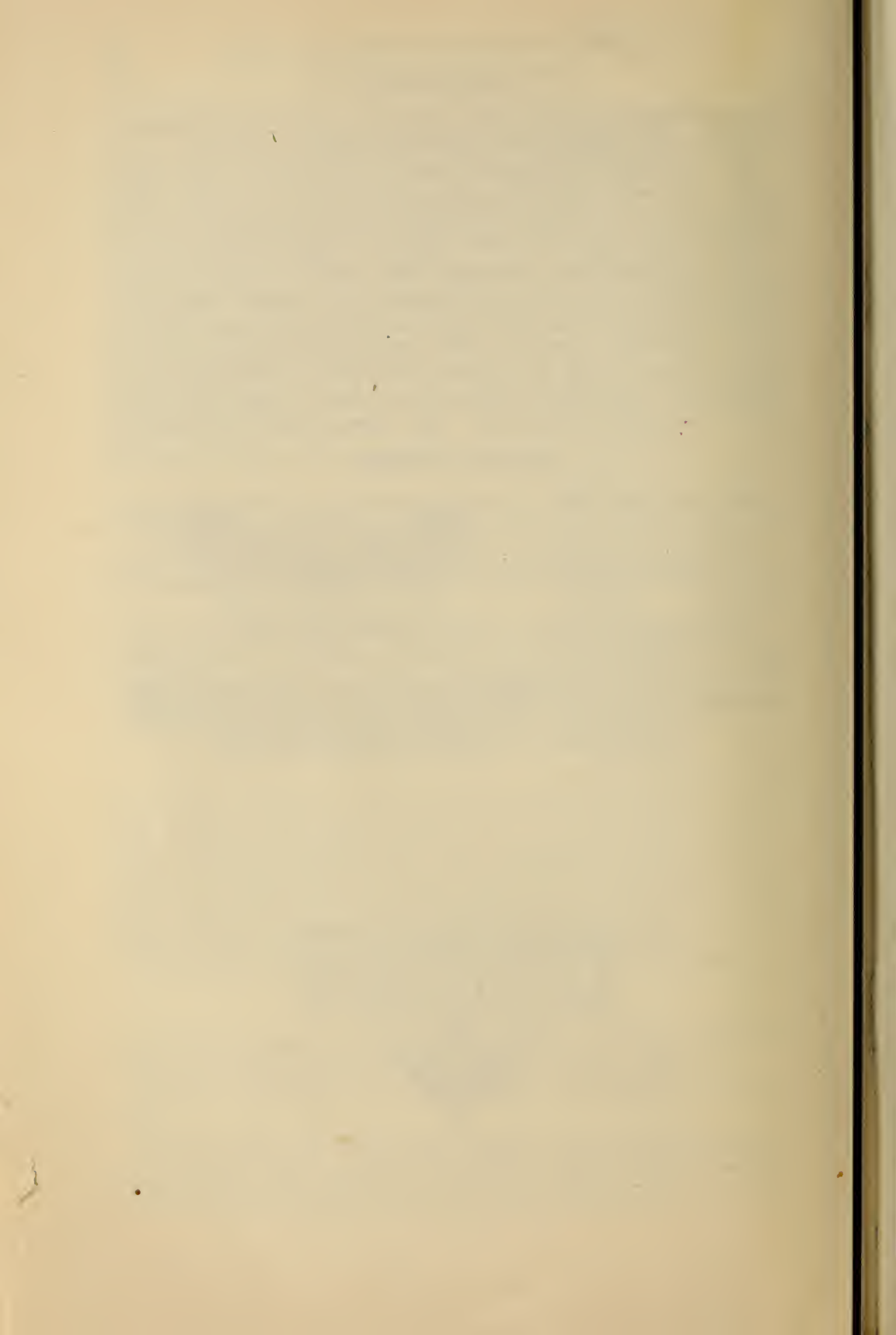
Apanteles n. sp., near *agrotidis*, issued from larvæ of this cutworm received from North Carolina, May 18, 1901. Determined by Ashmead.


Linnæmya picta Meig., a tachina fly, issued from the second lot, from North Carolina. It was identified by the late D. W. Coquillett. The same species of tachina fly was reared from this cutworm from material received from Norfolk, Va., the flies issuing October 8, 1910.

¹ Bul. 104, Cornell University Experiment Station, pp. 570-571.

THIS PUBLICATION may be procured from the Superintendent of Documents, Government Printing Office Washington, D. C., at 5 cents per copy







DOCUMENT

Date Due

[illegible]

UNIVERSITY OF FLORIDA



3 1262 09216 4598